

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Appln. No. 09/780,480

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Upon entry of this Amendment, claims 1-16 are pending in the application with claims 1-9 being withdrawn from consideration as being directed to a non-elected invention. In response to the Office Action (Paper No. 6), Applicant respectfully submits that the pending claims define patentable subject matter.

The title of the invention is objected to because the Examiner maintains that the title is not descriptive of the invention to which the claims are directed. By this Amendment, Applicant has amended the title as suggested by the Examiner. Accordingly, the Examiner is requested to remove the objection to the title.

Claims 10, 11 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Honshima et al. (USP 4,829,206; hereafter "Honshima"). Claims 12 and 14-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Honshima in view of Shiga et al. (USP 5,508,577). Applicant respectfully submits that the claimed invention would not have been anticipated by or rendered obvious in view of Honshima, alone or in combination with Shiga.

Amended independent claim 10 recites, in part, "first creases are formed on side portions of each insulator so as to extend in a lengthwise direction of the slot at a slot-opening end of the side portions, the first creases being preformed prior to the insulator being mounted in said slots by first bent parts for angling the slot-opening ends of the side portions so as to be apart from each other." Applicant respectfully submits that the applied references do not teach or suggest these features of the claimed invention.

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As shown in Figures 2-6 of the present application, each insulator 11 is formed in a substantially U-shape having side portions connected with a bottom portion. The side portions are bent at first bent parts 12 so as to be apart from each other to form outwardly bent portions on the top sides of the side portions. When each substantially U-shaped insulator 11 is inserted in the slot 2a along the inner walls thereof, the outwardly bent portions thereof is deformed by flanges 2c formed on the edges of teeth 2b so as to be close to each other. First creases formed by the first bent parts 12 of each insulator 11 extend in the longitudinal direction of each slot 2a at the open sides of the side portions thereof.

Honshima discloses an armature having half-closed slots adapted to prevent the winding from being displaced. As shown in Figure 1, a laminated iron core 2 is provided with slots 1 each accommodating a plurality of insulated windings 3 which are protected by an insulator 6. Each tooth 8 between an adjacent pair of the slots 1 is provided with anchors 7 having a curved surface projecting inside the slot for preventing the windings 3 from being displaced without damaging the insulator coating on the winding. The anchors 7 are fabricated by applying a pressing force to the end portion of the tooth 8 after the insulator 6 and the winding 3 have been accommodated within the slot 1.

The Examiner maintains that Honshima discloses first creases formed on side portions of insulators where the insulators are bent or curved (denoted by Examiner with reference numeral "101" in the figure on page 3 in the Office Action) by the base portions of the anchors when the anchors are formed in the end portion of the tooth. However, Applicant respectfully submits that this curved portion 101 of insulator of Honshima does not form a "crease" (i.e., "a line, mark, or

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ridge made by or as if by folding a pliable substance" as defined by Webster's Encyclopedic Unabridged Dictionary) but rather is simply a curved area corresponding to the contour of the anchor of the tooth.

Since the anchors 7 are fabricated by applying a pressing force to the end portion of the tooth 8 after the insulator 6 and the winding 3 have been accommodated within the slot 1, the side portions of the insulator 6 are curved along the inner surface of the anchor 7 at the slot-opening side of the side portions when the anchor 7 is formed in the end portion of the tooth 8. Accordingly, a crease is not formed on each slot-opening side of the side portions of the insulator.

Moreover, Applicant respectfully submits that it is quite clear that the curved portion 101 of Honshima's insulator is not preformed prior to the insulator being mounted in the slots by first bent parts for angling the slot-opening ends of the side portions so as to be apart from each other, as claimed. Rather, the curved portion 101 of Honshima's insulator is formed when the anchor is formed by applying a pressing force to the tooth after the insulator has been inserted into the slot. Further, the curved portions are formed on the side portions of the insulator so as to be close together. That is, the curved portion 101 of Honshima's insulator angle the slot-opening ends of the side portions of the insulator so as to be sloped towards each other (rather than apart from each other). Therefore, Honshima does not teach or suggest first creases formed by first bent parts for bending the slot-opening side of the side portions so as to be apart from each other.

Similarly, Applicant respectfully submits that Shiga does not teach or suggest the above-described features of independent claim 10 which are lacking in Honshima.

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With regards to dependent claim 12, the Examiner contends that Shiga discloses "the first crease and the second crease of a first side portion of each insulator are formed shifted toward the bottom of the slot with respect to the first crease and the second crease, respectively, of a second side portion of each insulator, whereby the top sides of the first and second side portions of each insulator, one overlapping the other, enclose an opening of each slot in a manner such that the top side of the second side portion is positioned over the top side of the first side portion." Although Shiga (Figure 7) discloses that a lower coil trunk 536 and an upper coil trunk 533 are accommodated within the slot, wherein the upper coil trunk 533 is covered with an upper insulating film 540, and the upper coil trunk 533 covered with the upper insulating film 540 and the lower coil trunk 536 are covered with lower insulating film 541, first and second creases are not formed on the slot-opening side of the side portions of the upper and lower insulating films 540 and 540. Further, though the end portion of the lower insulating film 541 overlaps on the end portion of the upper insulating film 540, the end portions of the upper and lower insulating films 540 and 541 do not enclose the opening of the slot. Accordingly, neither Honshima nor Shiga teach or suggest all of the limitations of dependent claim 12.

With regards to dependent claim 14, Applicant respectfully submits that Shiga does not teach or suggest the winding group is composed of a number of winding sub-portions each constructed by winding a strand of wire made of a continuous conductor so as to alternately occupy an inner layer and an outer layer in a slot depth direction within the slots at intervals of a predetermined number of slots, as required by claim 14. Rather, Shiga discloses that the winding

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(shown in Figure 12) is constructed by linking the upper coil trunk 533, the upper coil arm 534, the lower coil trunk 536 and the lower coil arm 537, as shown in Figure 6.

Accordingly, Applicant respectfully submits that independent claim 10, as well as dependent claims 11-16, should be allowable because the applied references, alone or combined, do not teach or suggest all of the features of the claims.

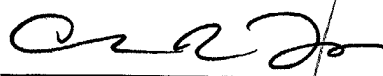
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE TITLE:

The title is changed as follows:

CREASED ARMATURE WINDING INSULATOR FOR DYNAMO-ELECTRIC
MACHINE [AND METHOD FOR MANUFACTURING THE SAME]

IN THE CLAIMS:

The claims are amended as follows:

10. (Twice Amended) An armature for a dynamo-electric machine, the armature comprising:

an armature core provided with a plurality of slots extending in an axial direction and disposed alongside each other in a circumferential direction;

an armature winding inserted in the slots so as to be mounted on the armature core; and

an insulator mounted in each of the slots for insulating between the armature core and the armature winding,

wherein the insulator is disposed between an inner face of each slot and the armature winding, and first creases are formed on side portions of each insulator so as to extend in a lengthwise direction of the slot at a slot-opening end of the side portions, the first creases being [formed] preformed prior to the insulator being mounted in said slots by first bent parts for angling the slot-opening ends of the side portions so as to be apart from each other.